

Jim Robt

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FAY 002

CRUISE REPORT

Geophysical Test Cruise

R/V H.J.W. FAY
Cruise 02

Sept. 27, 1975 - Sept. 29, 1975

R Wold-Chief Scientist

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The overall objective at this cruise was to check the operation of all the geophysical systems. Each system was to be checked out and modified where necessary until the best possible data were obtained. The acoustic characteristics of the vessel were to be checked by towing the various sensors at different speeds. When all of the systems were operating properly, data was to be obtained as part of the geophysics profiling program on Georges Bank.

The scientific party on board the vessel was:

Richard J. Wold - Chief Scientist	U.S.G.S.
John S. Schlee	U.S.G.S.
John A. Grow	U.S.G.S.
Thomas Aldrich	U.S.G.S.
Bill L. Jaworski	U.S.G.S.
Frank Jennings	U.S.G.S.
Perry Parks	U.S.G.S.
Richard Sylwester	U.S.G.S.
Dennis Edwards	U.S.G.S.
Michael Kerkmann	U.S.G.S.
Felicity Oram	U.S.G.S.
Joseph Burden	Raytheon
Frank Wood	SEI
Jack Mago	Geometrics
Donald Price	Price Compressor Co.

The vessel left Woods Hole at 1645z on 27 Sept. 75. The gradiometer was deployed off Gay Head at 1915z; followed by the 3.5 khz system and the minisparker. Interference problems were found between the minisparker and the gradiometer. A signal line going to the gravity hut from the gradiometer was found to be picking up noise from the minisparker. Also, the gradiometer tow cable had some problems. It was a new cable with a special floatation covering. Each of the two sensors on the cable had stabilizing fins, lead weights a few meters forward of each sensor, depth controllers, and a drag chute on the rear sensor. The lead weights seemed to cause the cable to tow too deep and were removed. Following that, the gradiometer performed well with only minor noise from the minisparker. In the future, however, the gradiometer should be run in such

a way that it is cycled with the minisparker, i.e. it's polarizing when the minisparker is firing.

The minisparker performed well. The hydrophone array had an intermittent problem which required switching to a different lead-in cable. From that point on, it worked well.

The gravity system worked well. It was found that it is not advisable to cruise at speeds greater than 10 knots because of the excessive vibrations in the gravity hut.

The 3.5 khz system started out fine but as deeper water was reached the bottom returns were lost. An attempt was made to use the Edo transceiver which helped for awhile but is also failed in deep water. The Raytheon technician was seasick and not very useful for servicing. The system would be considerably better if a 12 transducer array were mounted in the well.

On 28 Sept. the airgun system was tested. The hydrophone array was deployed with no problems and operated properly. The airguns were towed in two groups. One group of three airguns were towed from a "sled". The fourth airgun was towed separately. Except for minor rigging problems, the single airguns presented no problems. The group of three airguns did present some problems and required using the oceanographic winch, crane, and numerous tag lines. This rigging was to be changed before the next cruise. The biggest problem with the airgun system turned out to be the circuit breakers on the air compressor motors. They were too small to handle the load.

Following the airgun system test, it was decided to head back onto the shelf where a test could be run on the gravity system, in a low gravity gradient area, to calibrate the filter coefficients in the gravity data acquisition system.

Following that test, the FAY returned to Woods Hole arriving at 1230z, 29 Sept. 75. All of the geophysical systems were tested, problems identified, and 440 km of usable gravity data were obtained (Figure 1).

